# MEITRACK® GPS Vehicle Tracker



## User Guide V7.4

## VT310

# Contents

## 1. Poduct Overview

VT310 is a GPS/GPRS based tracking device, specially developed and designed for vehicle real-time tracking and fleet management.

VT310 has an inbuilt GPS module to obtain accurate position data.    This device utilizes its GSM capability to send position data to a specified mobile phone or server base for tracking and fleet management.

With internal memory, VT310 can store GPS coordinates when there is no GPRS connection, or at a specified interval requested by the user.

One optional feature of VT310 is that a microphone can be linked and hidden somewhere inside the vehicle for listening to the cabin.

VT310 has the following functions and features:

- SMS and GPRS TCP/UDP Communication (Meiligao Protocol)
- AGPS ( with GSM Base Station ID)
- Track on Demand
- Show Location Directly on Mobile Phone
- Track by Time Interval
- Track by Distance
- GSM Blind Area Memory
- Internal Memory for Logging
- Inbuilt Motion Sensor for Power Saving
- SOS Panic Button
- Movement Alarm
- Geo-fencing Control
- Low Battery Alarm
- Speeding Alarm
- GPS Blind Area Alarm (in/out)
- Power-cut Alarm
- Engine Cut (Stop Engine)
- I/O: 5 digital inputs (3 negative and 2 positive triggering), 5 outputs and 2 analog inputs of 10 bits resolution

## 2. For Your Safety

Read these simple guidelines. Not following them may be dangerous or illegal.

| | |
|---|---|
| **Proper Connection** | Do not connect any parts of this product to other incompatible devices. When connecting with other devices, read instructions carefully to ensure proper installation. |
| **Qualified Accessories** | Use original parts, qualified batteries and peripheral equipments to avoid damage to VT310. |
| **Safe Driving** | Drivers should not operate this product while driving. |
| **Qualified Service** | Only qualified personnel can install or repair VT310. |
| **Water Resistance** | VT310 is not water resistant. Keep it dry. Install this device inside the vehicle or use a waterproof bag for protection if necessary. |
| **Confidential Phone Number** | For safety reason, do not tell other people the mobile phone number of your VT310 without taking precautions of security settings. |

## 3. VT310 Characteristics

| Items | Specifications |
|---|---|
| Power Supply | +9V - +36V / 1.5A |
| Backup Battery | 850mAh |
| Normal power consumption | 85mA/h |
| Dimension | 104mm x 62mm x 24mm |
| Installation Dimension | 104mm x 83mm x 24mm |
| Weight | 190g |
| Work time | 24 hours in power-saving mode and 10 hours in normal mode |
| Operating temperature | -20° to 55° C |
| Humidity | 5% to 95% Non-condensing |
| Frequency | Quad Band GSM 850/900/1800/1900Mhz |
| GPS Module | latest GPS SIRF-Star III chipset |
| GPS Sensitivity | -159Db |
| GPS Frequency | L1, 1575.42 MHz |
| C/A Code | 1.023 MHz chip rate |
| Channels | 20 channel all-in-view tracking |
| Position Accuracy | 10 meters, 2D RMS |
| Velocity Accuracy | 0.1 m/s |
| Time Accuracy | 1 us synchronized to GPS time |
| Default datum | WGS-84 |
| Reacquisition | 0.1 sec., average |
| Hot start | 1 sec., average |

| Warm start | 38 sec., average |
|---|---|
| Cold start | 42 sec., average |
| Altitude Limit | 18,000 meters (60,000 feet) max |
| Velocity Limit | 515 meters/second (1000 knots) max |
| LED | 2 LED lights to show GPS/GSM status |
| Flash Memory | 4MB |
| Button | One SOS Button |
| Interface | 5 digital inputs (3 negative and 2 positive triggering) <br><br> 2 analog inputs <br><br> 5 outputs. |

## 4. Getting Started

This section will describe how to set up your VT310.

### 4.1 Hardware and Accessories

VT310 is supplied in a box which includes:



| VT310 with Battery | GPS Antenna | GSM Antenna | Wires with SOS Button | USB Cable | CD |
|---|---|---|---|---|---|

### 4.2 View



| Front View | Side View | Back View |
|---|---|---|

### 4.3 Functional Parts

| GPS LED (Blue) | |
|---|---|
| On | One button is pressed or input is active |
| Flashing ( every 0.1 second) | The unit is being initialized |
| Flashing (0.1 second on and 2.9 seconds off) | VT310 has a GPS fix |
| Flashing (1 second on and 2 seconds off) | VT310 has no GPS fix |
| **GSM LED (Green)** | |
| On | A call is coming in / a call is being made |
| Flashing ( every 0.1 second) | The unit is being initialized |
| Flashing (0.1 second on and 2.9 seconds off) | VT310 is connected to the GSM network |
| Flashing (1 second on and 2 seconds off) | VT310 is not connected to the GSM network |
| **Power On/Off Button** | Press and hold for 3~5 seconds to turn on/off VT310 |
| **SOS Button** | SOS button is connected with the wires. Press it to send SOS alarm to the preauthorized phone number. |
| **Mini USB** | Used for firmware update, configuration on PC and exporting stored data. (USB-to-Serial Adaptor is required for firmware update, configuration and exporting stored data) |
| **SIM Card Holder** | Insert SIM card here |
| **GSM Antenna** | Connector for GSM antenna |
| **GPS Antenna** | Connector for GPS antenna |
| **Screw Holes** | There are 4 screw holes on the tracker, 2 along either side that act as fixing points to the vehicle |
| **Microphone (optional)** | A microphone to be linked out for listening to the cabin (wiretapping) |
| **PINs Connector** | |

| PIN | Color | Function |
|---|---|---|
| Power | Red | DC In (power input). Input voltage: 9V~36V. 12V suggested |
| GND | Black | Ground |
| In | White | Digital Inputs. In1, In2 and In3 are negative triggering; In4 and In5 are positive triggering |
| Out | Yellow | Outputs. Low voltage (0V) when effective and open drain when ineffective<br><br>Output open drain sink voltage (ineffective): 45V max.<br><br>Output low voltage sink current (effective): 500mA max. |
| AD | Blue | 10 Bits Resolution Analog Inputs. Input voltage: 0~6V |

**DC Characteristics of PINs**

| PIN | Inactive | Active | Maximum |
|---|---|---|---|
| Input 1/2/3 | Open drain or >1V | 0V(GND) | 45V |
| Input 4/5 | Open drain or 0V(GND) | >3V | 45V |
| Output 1/2/3/4/5 | Open drain | 0V (GND) | 45V/500mA |
| DC IN | / | 9-36V | 45V |
| AD 1/2 | / | 0-6V | 45V |

## 4.4 Connecting and Installation

Read this manual before using your VT310. Check to make sure all parts are included in the packaging box.

4.4.1 Ensure that your VT310 has a working SIM card installed.

- Check that the SIM card has not run out of credit (test the SIM card in a phone to make sure it can send and receive SMS)

- Check that the SIM card lock code is turned off

- If you require the function of sending an SMS location report to the authorized phone number when it makes a call to the VT310, please make sure the SIM installed supports displaying caller ID.

Before inserting SIM card, cut off the power for VT310.

Install SIM Card

- Unscrew and remove the front cover of VT310.

- Insert the SIM card by sliding it into the card slot with the chip module facing the connectors on PCB.

- Replace the front cover and screw it in.

4.4.2 Antenna Connection

Connect the GSM Antenna to VT310.

Connect the GPS Antenna to VT310.

- GPS antenna is used to receive satellite signals in the sky. It should be fixed to face the sky, (It is recommended to place this device under the windshield) and should not be covered or shielded by any objects containing metal.

  4.4.3 Find a suitable place inside the car for installing VT310. Wiring connections must be firm and reliable. The joints should be wrapped tightly with insulating tape. The unused electrical wire should be properly insulated.

Check to make sure all wirings have been connected correctly. Then connect the AVL unit to the motor power.

Make a missed phone call the VT310 using a mobile phone to check if the call can go through. The VT310 should reply with an SMS indicating longitude, latitude, speed and date.

## 5. Change Password

**Command**: W******,001,######

**Description**: Change user's password.

**Note**:

1. ****** is user's password and the default password is 000000. The tracker will only accept commands from a user with the correct password. Commands with wrong password will be ignored.

2. ###### is the new password. Password should be 6 digits.

**Example**:

W000000,001,123456

W123456,001,999999

## 6. Time Zone

**Command**: W******,032,T

**Description**: Correct time to your local time

**Note**:

1. Default time of the tracker is GMT

2. This correction is applied to location reports by SMS and SMS alarms.

T=0, to turn off this function;

T=_[-32768,32767] to set time difference in minutes to GMT.

For those ahead of GMT, input the time difference in minutes directly.

For example, for GMT+8, W000000,032,480. (8 Hours is 480 minutes)

'-'is required for those behind GMT.

For example, W000000,032,-120. (2 hours or 120 minutes behind GMT)

**Example**:

W000000,032,480

W000000,032,-120

## 7. Track

### 7.1 Track by SMS

**- Track on Demand - Reply with longitude, latitude, speed and date**

**Command**: W******,000

**Description**: To get the current location of the tracker, send this command as an SMS or make a telephone call directly to the tracker.

After doing so, the device will report its longitude and latitude by SMS with the format as follows:

Latitude = 22 32 36.63N Longitude = 114 04 57.37E, Speed = 2.6854Km/h, 2008-12-24,01:50

**Example**:

W000000,000

**- Track on Demand - Reply with a link to Google Maps**

**Command**: W******,100
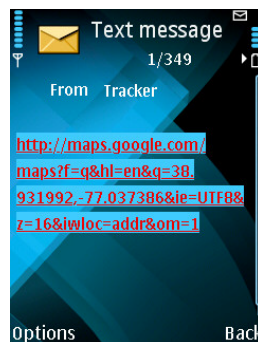
**Description**: Send this command to the tracker and you will receive an SMS with an http link. Click on the link and the location will

be shown directly on your mobile phone using Google maps. For example:

*http://maps.google.com/maps?f=q&hl=en&q=22.540103,114.082329&ie=UTF8&z=16&iwloc=addr&om=1*

**Note**: Only smart phones and PDAs support this function.

**Example**:

W000000,100

## 7.2 Track by Calling

Make a missed call to the tracker and it will report its longitude and latitude by SMS with the following format:

Latitude = 22 32 36.63N Longitude = 114 04 57.37E, Speed = 2.6854Km/h, 2008-12-24, 01:50

## 7.3 Track by Preset Interval

**Command**: W******,002,XXX

**Description**: Set an interval for the tracker to continuously report its location by SMS

**Note**:

1. XXX is the interval in minutes;

2. XXX=000 to turn off tracking by time.

**Example**:

W000000,002,030

The tracker will send location data back to your mobile phone every 30 minutes.

## 7.4 Google Earth and Google Map

Download Google Earth from http://earth.google.com/.

Start Google Earth (For more information about Google Earth please refer to http://earth.google.com/ or go to http://maps.google.com)

Input the latitude and longitude that you received from the tracker by SMS and click the search button. Google Earth or Google Maps will display the location for you.

Example:

When you receive: Latitude = 22 32 40.05N Longitude = 114 04 57.74E

Type as the following picture shows:

(Note: you should input the latitude and longitude as: 22 32 40.05N 114 04 57.74E)



And then you can find the location of your tracker:
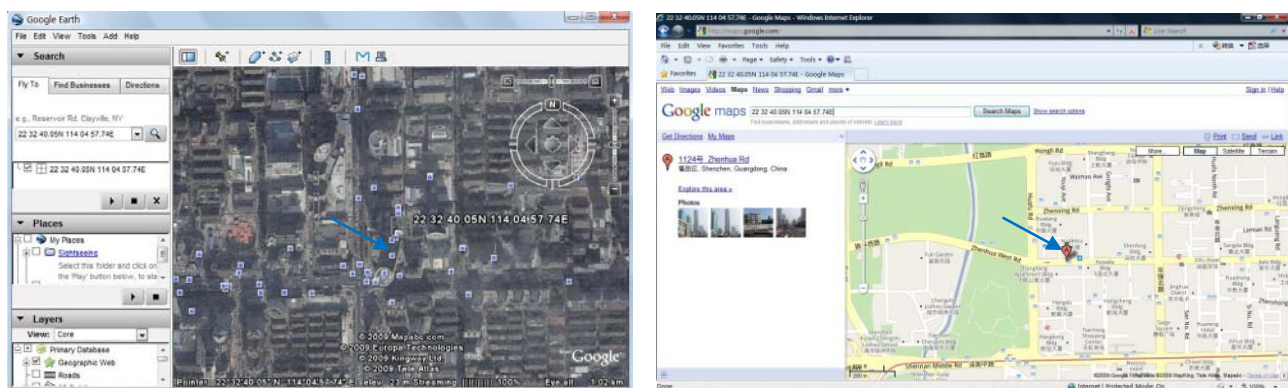
You can also use local map software on PDA or car navigation device to input the coordinates.

## 7.5 Track by MS01/MS02

You can also see a physical location on a map with our GPS Tracking Software MS01 or MS02.

This software is available for purchase and can be used for tracking after proper configuration.
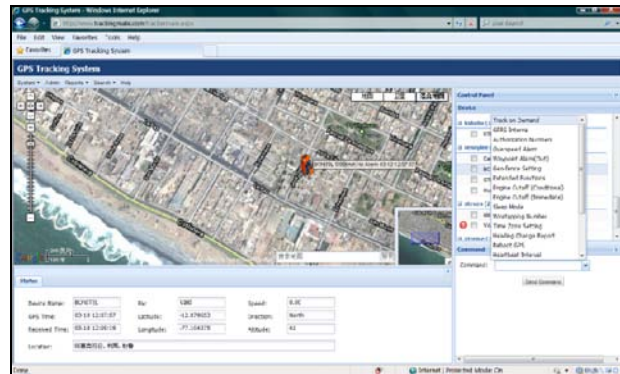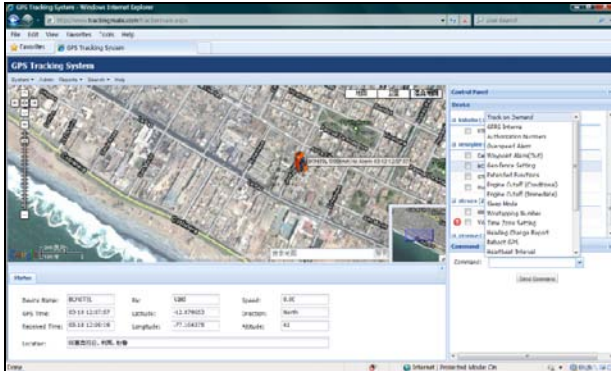




Please refer to MS01/MS02 User Guide for more information.

## 7.6 Track by GPRS (Meiligao Protocol) between Server and Tracker

### 7.6.1 Set Tracker's GPRS ID

**Command**: W******,010,ID

**Description**: Set a digital GPRS ID for the tracker.

**Note**: GPRS ID must not be over 14 digits.

**Example**:

W000000,010,00001

### 7.6.2 Set APN

**Command**: W******,011,APN,Username,Password

**Description**: Set APN details for the tracker

**Note**:

1. APN username and password are optional. If no APN username and password are required, just input APN only;

2. APN defaulted as 'CMNET';

3. APN + username + password should not over 39 characters.

**Example**:

W000000,011,CMNET,Meiligao,6688

W000000,011,CMNET

### 7.6.3 Set IP and Port

**Command**: W******,012,IP,Port

**Description**: Set the IP and Port of tracker for GPRS communication.

**Note**:

1. IP is your server's IP or the domain name.

2. Port: [1,65534]

**Example**:

W000000,012, 220.121.7.89,8500

W000000,012,www.meiligao.net,8500

### 7.6.4 Set DNS Server IP (optional)

**Command**: W******,009,DNS Server IP

**Description**: If the domain name you set by the last command (W******,012,IP, Port) doesn't work, your server IP is not properly set. You can first use this command to set DNS Server IP (please check with your DNS server provider for the DNS Server IP) and then redo the command W******,012,IP, Port.

**Example**: W000000,009,220.23.4.90

### 7.6.5 Enable GPRS Tracking

**Command**: W******, 013, X

**Description**: Enable GPRS tracking function.

**Note**:

X=0, to turn off GPRS tracking (default);

X=1, to enable GPRS tracking via TCP;

X=2, to enable GPRS tracking via UDP.

**Example**: W000000,013,1

### 7.6.6 Set GPRS Interval

**Command**: W******,014,XXXXX

**Description**: Set time interval for sending GPRS packets.

**Note**:

XXXXX should be in five digits and in unit of 10 seconds.

XXXXX=00000, to turn off this function;

XXXXX=00001~65535, time interval for sending GPRS packet and in unit of 10 seconds.

**Example**: W000000,014,00060

In this example, the tracker will send every 600 seconds (10 minutes).

*For more information regarding GPRS tracking please refer to GPRS Communication Protocol.*

**7.7 Track by GpsGate**

The GT30i supports GpsGate Software.

Please contact our company or GpsGate for more information for settings.

## 8. Authorization

**Command**: W******,003,F,P,T

**Description**: Authorize phone numbers for the SOS/inputs, receiving location reports, SMS alarms or phone calls

**Note**:

F=0, to turn off this function; (default)

F=1, only sends SMS to the authorized phone number;

F=2, only calls the authorized phone number;

F=3, both SMS and calling.

(Note: VT310 doesn't support two-way conversation. Calling only gives ring and reminder to the authorized phone.)

P=1, set an authorized number for SOS button (Input 1);

P=2, set an authorized number for Input 2;

P=3, set an authorized number for Input 3.

T: Preset phone number. Max.16 digits.

**Example**:

W000000,003,1,1,88888888

## 9. Application Examples for Inputs

**9.1 SOS Button Connection**

Connect the SOS button and wires as below picture shows:
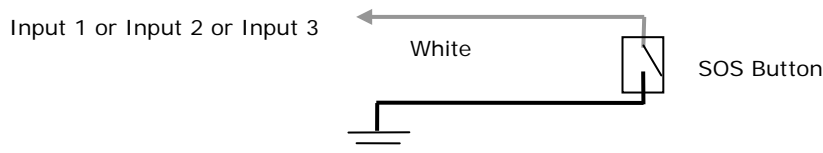


Note: input voltage to Input must not over 45V

After above authorization is completed, once the SOS is pressed, an SOS SMS - "SOS Alarm" will be sent to the preauthorized phone number. Then a message with longitude and latitude will follow.

(Note: An SOS button is already connected to VT310 in standard packing)

**9.2 Detecting Lock Status of Car's Door or Trunk (Car Boot).**
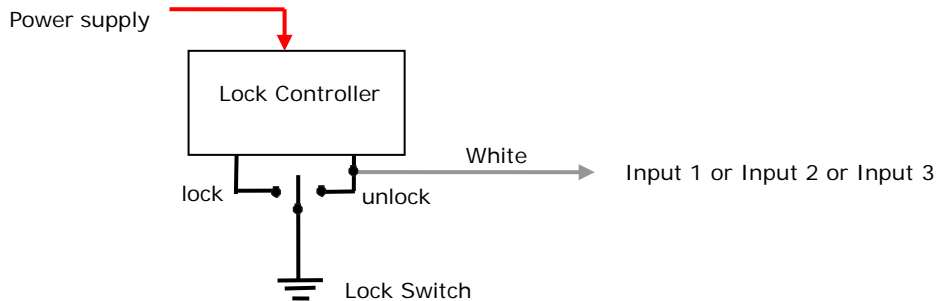


When the lock is opened, there will be a negative trigger to Input 1 or Input 2 or Input 3.    After this, an SMS alarm will be sent to the authorized phone number, or a GPRS alarm will be sent to the server (please refer to the GPRS Command 0x9999 in **GPRS Communication Protocol**).

**9.3 Connecting with Switch Sensors**

The SMS alarm will be sent to the authorized phone number.
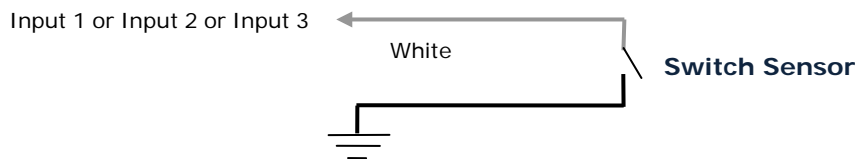


**9.4 Ignition Detection**

Input 4 or Input 5 (positive triggering) can be used for ignition detection. The detection alarm will be sent to the server via GPRS. Please refer to <GPRS Communication Protocol> Alarm Command 0x9999 for more information.
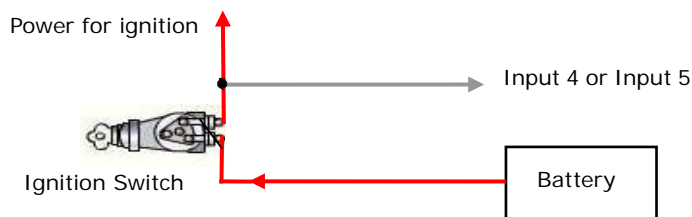


**9.5 Analog Input (AD1 and AD2)**

Input voltage should be 0~6V. Please refer to **GPRS Communication Protocol** for more information for AD1 and AD2 data.

For example:

094506.000,A,2232.5412,N,11404.6919,E,0.00,,290709,,*12|1.7|110|0000|00AA,0267

AD1 is 0x00AA and AD2 is 0x0267.

Voltage Formula:    Input Voltage=(AD*6)/1024

0x00AA=>170(decimal)=>(170*6)/1024=0.99609375V(voltage)

0x0267=>615(decimal)=>(615*6)/1024=3.603515625V(voltage)

**Application Example - Fuel Level Sensor**
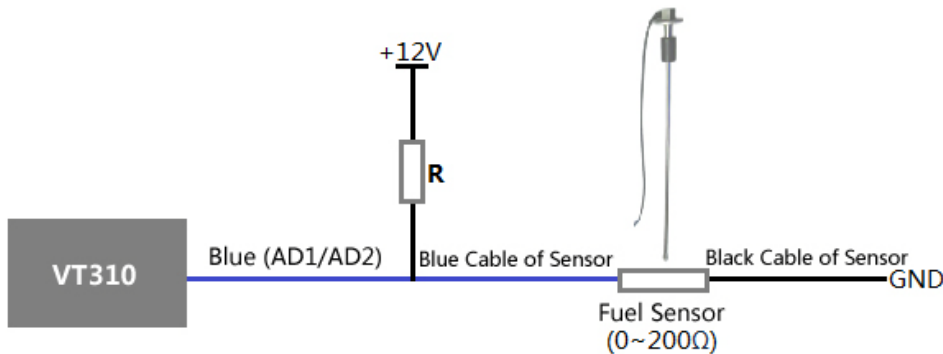


Fuel level sensors supplied by us are resistance-type sensors with output resistance: 0-200Ω(ohm).

For the circuit shown on the right picture, if VCC is 12V, R should be 200Ω(ohm) and if VCC is 24V then R should be 600Ω(ohm) to make the input range to AD1 or AD2 is 0-6V.

The below formula is for calculating the fuel percentage left for this fuel level sensor:

$$\text{Percentage Left} = \frac{\text{AD value}}{1024*2 - \text{AD value}} * 100\%$$

Note: The value must be converted into decimal, for example, 0x0267 is 615 in decimal.

## 10. Speeding Alarm

**Command**: W******,005,XX

**Description**: Turn on speeding alarm. When the tracker speeds higher than the preset value, it will send an SMS alarm to the authorized phone number for SOS.

**Note**: XX is the preset value of speed and in 2 digits.

=00 , to turn off this function;

=[01, 20] (unit: 10Km/h).

**Example**: W000000,005,08

When the tracker's speed is over 80km/h, an SMS alarm will be sent out.

## 11. Movement/Geo-fence

## 11.1 Movement Alarm

**Command**: W******,006,X

**Description**: When the tracker moves out of a preset circle scope, it will send an SMS alarm to the authorized phone number for SOS.

**Note**:

1. X is the preset radii to the tracker's original place.

=0, to turn off this function.

| =1, 30m | =2, 50m | =3, 100m | =4, 200m |
|---|---|---|---|
| =5, 300m | =6, 500m | =7, 1000m | =8, 2000m |

2. Radii: [1, 4294967295] meter(s), suggest to be set above 100 meters.

3. GPRS command is 0x12.

**Example**: W000000,006,1
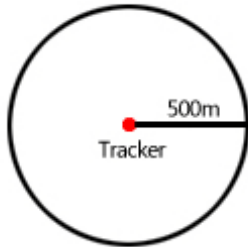


When tracker moves out of this circle scope, it will send out an SMS alarm.


## 11.2 Geo-fence Alarm

**Command**: W******,302,X

**Description**: Turns on Geo-fencing alarm. When the tracker moves in/out the preset scope, it will send an SMS alarm to the authorized phone number for SOS.

**Note**:

1. X is the parameters which include: latitude, longitude, radii, in, out.

2. Latitude and longitude should be in ASCII format as follows:

Latitude is ddd.dddddd, '0' is needed to be stuffed if no value available. '-' should be added for south.

Longitude is dd.dddddd, '0' is needed to be stuffed if no value available. '-' should be added for west.

3. Radii: [1, 4294967295] meter(s), suggested to be set above 100 meters, if set above 8, it is corresponding radii.

4. If In and Out are 0, corresponding function is invalid. If In and Out are 1, valid.

5. Reply as Geo-Fence Alarm.

6. GPRS exiting command is 0x12, entering command is 0x13.

7. Send W******, 302 to turn off Geo-fence function.

**Example**:

W000000,302,22.000000,-114.123456,3000,1,1

**Remarks:**

**1. Only one alarm can be set in either In or Out;**

**2. Only one alarm can be set in either Movement Alarm or Geo-fence Alarm.**

## 12. Track by Distance

**Command**: W******,303,X

**Description**: Send this command to set distance interval

**Note**:

1.  X= [1, 4294967295], suggested to be set above 300 meters;

2.  X=0, turn off.

**Example**: W000000,303,1000

## 13. Listening-in (Optional)

**Command**: W******,030,T

**Description**: Authorize a phone number to make a silent call to the tracker. The tracker will answer the call automatically and allows the caller to listen to what is happening around the tracker. There is no sound when the tracker is working.

**Note**:

1.  T is phone number, Max. 16 digits;

2.  If incoming call is not from authorized phone number, it will be treated as a normal call and would not enter Listening-in status.

**Example**: W000000,030,138000000

## 14. Set Sensitivity of Tremble Sensor

**Command**: W******,035,XX

**Description**: Send this command to set sensitivity of tremble sensor

**Note**:

1.  XX=[1,255], it will be more sensitive if XX is smaller.

2.  Default value is 30.

**Example**: W000000,035,30

## 15. Output Control

### 15.1 Output Control (Immediate)

**Command**: W******,020,P,F

**Description**: Send this command to control the Output of VT310

**Note**:

P=1, Output1;

P=2, Output2;

P=3, Output3;

P=4, Output4;

P=5, Output5.

F=0, to close the output (open drain);

F=1, to open the output (low voltage).

**Example**: W000000,020,1,1

## 15.2 Output Control (Conditional)

**Command**: W******,120,ABCDE or W******,220,ABCDE

**Description**: Send this command to control the Output of VT310. This command is only workable when the speed is below 10km/h(command 120) or 20km/h(command 220) and GPS is available.

**Note**:

ABCDE represents Out1, Out2, Out3, Out4, and Out5 respectively.

If A or B or C or D or E,

=0, to close the output (open drain);

=1, to open the output (low voltage);

=2, to remain previous status.

**Example**:

W000000,120,10000

W000000,220,10000

## 15.3 Application Examples for Outputs

### 15.3.1 Engine Cut

**Relay Connection:** Connect a relay as below picture shows:
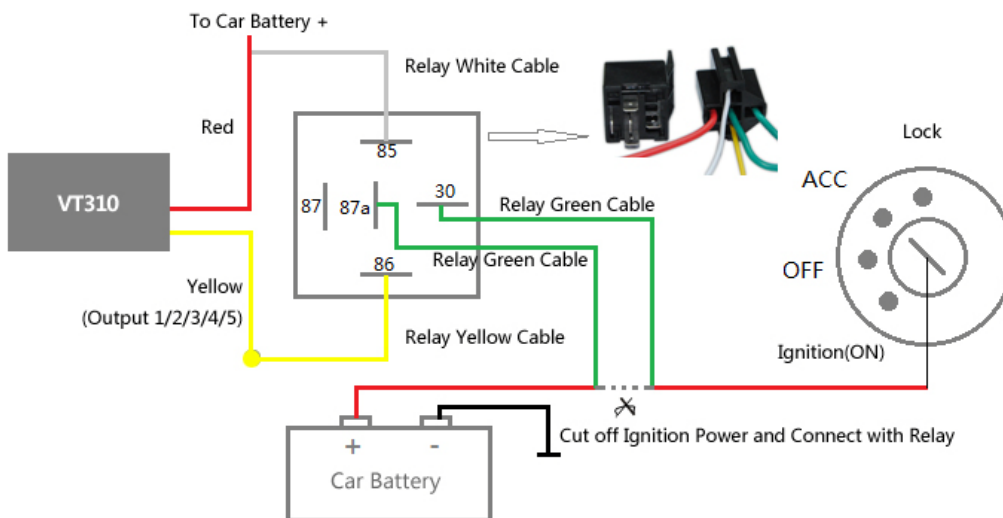


Calculate the correct VCC value according to relay's parameter to comply with the following requirements:

| Output open drain sink voltage (ineffective) | 45V max |
|---|---|
| Output Low voltage sink current (effective) | 500mA max |

Normally two green wires are connected solidly (P1 and P2 are Normal Close[NC] in the relay), when output is open (Output be low voltage), two green wires will disconnect, the engine is then cut.

Take Output1 as an example:

W000000,020,1,1 (cut engine)

W000000,020,1,0 (cancel engine-cut)

### 15.3.2 Connecting with Car Alarm

When the Output that connected to the car alarm is open, the alarm will start to work.



Alarm

Output 2 or Output 3 or Output 4 or Output5
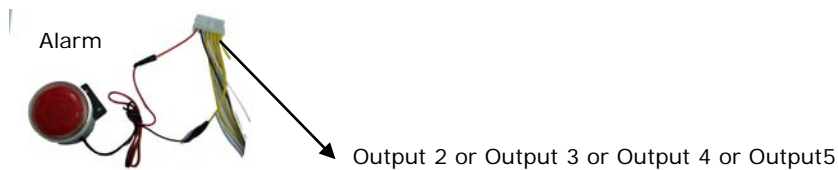
## 16. Heading Change Report

**Command**: W******,036,degree

**Description**: When the heading direction of the tracker changes over the preset degree, a message with location data will be sent back to the server by GPRS. This enhances the accuracy when the tracker makes a direction change.

**Note**:

degree=0, to turn off this function;

degree=[1,360], to set degree of direction change.

**Example**: W000000,036,90

When the tracker turns more than 90 degree, a message will be sent back to the server.

## 17. Heartbeat

**Command**: W******,015,data

**Description**: Set an interval for heartbeat.

**Note**:

data is the interval unit of minutes.

data=0, to turn off this function;

data=1~65535, set interval for heartbeat.

**Example**:

W000000,015,10

In this example, the tracker will send heartbeat every 10 minutes.

## 18. Track Log

### 18.1 Log by Interval

**Command**: W******,031,X

**Description** Set time interval for logging GPS information. Log information is stored within the device memory. When the memory gets full, the newest record will be overwritten on top of the oldest (FIFO - First In, First Out). In this case, only the newest information is stored.

**Note**:

1. X=0, to turn off this function. X=[1, 65535] to set interval in the unit of SECOND.

2. The logged message is in GPRMC format and includes:

   *Date and time*

   *Longitude*

   *Latitude*

   *Speed*

   *Direction*

3. All data, stored within the memory, may be exported to the PC using the USB connector. To do this, the "GPSLog" program has to be used *(please refer to **GPSLog User Guide** and **GPRS Communication Protocol** for more information).*

4. The device has 4MB of internal memory space for storing the track log. The Device is able to store up to 180,000 records within the memory.

**Example**:

W000000,031,60

The tracker will store GPS data every 60 seconds.

### 18.2 Auto Log when no GPRS

When there is no GPRS connection, the tracker can store all GPS information triggered by preset tracking interval, alarms, request, or button activation and send this information (FILO - First In, Last Out) to server by GPRS or preauthorized mobile phone by SMS when GPRS connection recovers.

The interval memory can store up to 1500 SMS and 4600 GPRS message.

### 18.3 Format Buffer

**Command**: W******, 503

**Description**: This command clears the data stored in the buffer.

**Note**: Deleted data can no longer be recovered

**Example**: W000000,503

## 19. Power Down

**Command**: W******,026,XX

**Description**: This command puts the tracker in power down mode when it is inactive or immobile for a period of time. In Power Down mode, GPS stops working, GSM enters sleep mode and stops sending out messages.    The device remains in this mode until it is activated by message, incoming calls, movement, or triggered by the button.

**Note**:

XX=00, to turn off this function;

XX=01~99, to turn on Power Down after a specified period of being inactive (or stationary). It is in unit of minute.

**Example**: W000000,026,10

The tracker will enter power down mode after it is inactive (or stationary) for 10 minutes.

## 20. Get IMEI

**Command**: W******,601

**Description**: Get IMEI of the tracker. IMEI is 15 digits

**Example**: W000000,601

## 21. Initialization

**Command**: W******,990,099###

**Description**: This sets all settings (except for the password) back to factory default.

**Note**: Send SMS "Default?" to the device. Within 120 seconds, send this SMS command to the tracker.

### is the ending character and is required in the text message.

**Example**: W000000,990,099###

## 22. Password Initialization

**Command**: W888888,999,666

**Description**: This resets the password back to factory default and can be used in case you forget your password.

**Note**: Send SMS "Default?" to the device, and then, within 120 seconds, send this SMS command to the tracker to set the password back to factory default (000000).

If you have set an authorized telephone number, when the password has been successfully preset, the telephone will receive W888888,999,666

**Example**: W888888,999,666

*For more details regarding SMS commands, please go to Annex 1 Command List*

## 23. Parameter Editor

The tracker can also be configured by computer using the Parameter Editor. This method is much easier and user friendly.



Please refer to **GPS Tracker Parameter Editor** for more information.

## 24. Copyright and Disclaimer

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**Annex 1. SMS Command List**

Note: ****** is user's password and the default password is 000000. The tracker will only accept commands from a user with the correct password. Commands with wrong password will be ignored.

| Description | SMS Command | Example |
|---|---|---|
| **Track on Demand** | W******,000 | W000000,000 |
| Remarks: To get the current location of the tracker, send this command as an SMS or make a telephone call directly to the tracker. After doing so, the device will report its longitude and latitude by SMS with format as follows:<br><br>Latitude = 22 32 36.63N Longitude = 114 04 57.37E, Speed = 2.6854Km/h, 2008-12-24,01:50 | | |
| | | |
| **Track on Demand**<br><br>**-Google Link** | W******,100 | W000000,100 |
| Remarks: Send this command to the tracker and you will receive an SMS with a http link. Click on the link and the location can be shown directly on your mobile phone using Google maps. For example:<br><br>http://maps.google.com/maps?f=q&hl=en&q=22.540103,114.082329&ie=UTF8&z=16&iwloc=addr&om=1<br><br>(Note: Only smart phones and PDAs support this function.) | | |
| | | |
| **Change Password** | W******,001,###### | W000000,001,123456 |
| Remarks: To change user's password. ###### is the new password. Password should be 6 digits. | | |
| | | |
| **Track by Interval** | W******,002,XXX | W000000,002,030 |
| Remarks: To set interval for automatic timed report.<br>XXX is the interval in minutes. If XXX=000, turn off tracking by time.<br>In this example, the tracker will send location data back to your mobile phone every 30 minutes. | | |
| | | |
| **Authorization** | W******,003,F,P,T1<br><br>(W******,003,F,P,T1,T2) | W000000,003,3,1,88888888<br><br>W000000,003,3,1,88888888,99999999 |
| Remarks: To authorize phone numbers for button/Inputs for receiving location reports, SMS alarms or phone calls.<br>F=0, to turn off this function; (default)<br>F=1, only sends SMS to the authorized phone number;<br>F=2, only calls the authorized phone number;<br>F=3, both SMS and calling.<br>P=1, set an authorized number for Input 1;<br>P=2, set an authorized number for Input 2;<br>T1: Preset phone number. Max.16 digits.<br>If you need to set different numbers for receiving SMS and phone call, you can use W******,003,F,P,T1,T2, In this case T1 is the phone number for receiving SMS and T2 for receiving phone calls.<br>Note: VT310 doesn't support two-way conversation. Calling only gives ring and reminder to the authorized phone. | | |
| | | |

| **Speeding Alarm** | W******,005,XX | W000000,005,08 |
|---|---|---|

Remarks: When the tracker speeds higher than the preset value, it will send an SMS to the authorized phone number for SOS.

XX is the preset value of speed and in 2 digits.

=00 , to turn off this function;

=[01, 20] (unit: 10Km/h).

In this example, when the tracker's speed is over 80km/h, an SMS alarm will be sent out.

| **Movement Alarm** | W******,006,X | W000000,006,6 |
|---|---|---|

Remarks: When the tracker moves out of a preset circle scope, it will send an SMS alarm to the authorized phone number for SOS.

X is the preset radii to the tracker's original place.

=0, to turn off this function

| =1, 30m | =2, 50m | =3, 100m | =4, 200m |
|---|---|---|---|
| =5, 300m | =6, 500m | =7, 1000m | =8, 2000m |

| **Geo-fence Alarm** | W******,302,X | W000000,302,22.000000,-114.123456,3000,1,1 |
|---|---|---|

Remarks: Turn on Geo-fencing alarm. When the tracker moves in/out the preset scope, it will send an SMS alarm to the authorized phone number for SOS.

Note:

1. X is the parameter that includes: latitude, longitude, radii, in, out.

2. Latitude and longitudes should be in ASCII format as follows:

Latitude is ddd.dddddd, '0' is needed to be stuffed if no value available. '-' should be added for south.

Longitude is dd.dddddd, '0' is needed to be stuffed if no value available. '-' should be added for west.

3. Radii: [1, 4294967295] meter(s), suggest to be set above 100 meters, if set above 8, it is corresponding radii.

4. If In and Out are 0, corresponding function is invalid, if are 1, valid.

5. Reply as Geo-Fence Alarm.

6. GPRS exiting command is 0x12, entering command is 0x13.

7. Send W******, 302 to turn off Geo-fence function.

| **Track by Distance** | W******,303,X | W000000,303,1000 |
|---|---|---|

Remarks: Send this command to set distance interval

Note:

1.     X= [1, 4294967295], suggest to be set above 300 meters;

2.     X=0, turn off.

| **Extended Functions** | W******,008,ABCDEFGHIJ### | W000000,008,1011100011### |
|---|---|---|

Remarks:

**A=0**, turn off the function of sending SMS location report after a phone call is made to the tracker;

**A=1**, turn on the function of sending SMS location report after a phone call is made to the tracker.

**B=0**, location data of NMEA 0183 GPRMC will be interpreted into normal text for easy reading;

For example, Latitude = 22 32 36.63N Longitude = 114 04 57.37E, Speed = 2.6854Km/h, 2008-12-24,01:50

**B=1**, location data complies with NMEA 0183 GPRMC protocol.

For example, $GPRMC,161509.000,A,2232.5485,N,11404.6887,E,0.3,153.7,290709,,*03

**C=0**, turn off the function to automatically hang up an incoming call;

**C=1**, turn on the function to automatically hang up an incoming call after 4 - 5 rings.

**D=0**, turn off the function of sending an SMS when the tracker is turned on;

**D=1**, turn on the function of sending an SMS to the authorized phone number for SOS when the tracker is turned on.

**E**, defaulted as 1 (the tracker shuts down automatically when the power voltage is lower than 3V).

**F=0**, turn off the SMS alarm when the tracker enters GPS blind area;

**F=1**, turn on the SMS alarm when the tracker enters GPS blind area. SMS is to be sent to the authorized phone number for SOS.

**G=0**, all LEDs work normally;

**G=1**, all LEDs stop flashing when the tracker is working.

**H**, reserved and defaulted as '0'.

**I=0**, turn off the function of sending SMS alarm when the extra power of the vehicle tracker is cut;

**I=1**, turn on the function of sending an SMS alarm to the authorized phone number for SOS when the extra power of the vehicle tracker is cut.

**J**, defaulted as 1.

**###** is the ending character.

(ABCDEFGHIJ defaulted as 1000100001)

| | | |
|---|---|---|

***Presetting by SMS for GPRS tracking** (Ensure that your SIM card supports GPRS connection prior to setting)*

| **Set Tracker's GPRS ID** | W******,010,ID | W000000,010,00001 |
|---|---|---|
| Remarks: to set a digital GPRS ID for the tracker.<br><br>GPRS ID must not over 14 digits. | | |
| | | |
| **Set APN** | W******,011,APN,Username,Passwo<br>rd | W000000,011,CMNET,Meiligao,6688<br><br>W000000,011,CMNET |
| Remarks: If no APN username and password are required, just input APN only.<br><br>APN defaulted as 'CMNET'.<br><br>APN + username + password should not over 39 characters. | | |
| | | |
| **Set IP and Port** | W******,012,IP,Port | W000000,012, 220.121.7.89,8500<br><br>W000000,012,www.meiligao.net,8500 |
| Remarks: IP is your server's IP or the domain name. Port: [1,65534] | | |
| | | |
| **Set DNS Server IP** | W******,009,DNS Server IP | W000000,009,220.23.4.90 |
| Remarks: If the domain name you set by the last command (W******,012,IP, Port) doesn't work, your server IP is not properly set. You can first use this command to set DNS Server IP (please check with your DNS server provider for the DNS Server IP) and then redo the command W******,012,IP,Port. | | |
| | | |
| **Enable GPRS Tracking** | W******,013,X | W000000,013,1 |
| Remarks: | | |

X=0, to turn off GPRS tracking (default);

X=1, to enable GPRS tracking via TCP;

X=2, to enable GPRS tracking via UDP.

| Set GPRS Interval | W******,014,XXXXX | W000000,014,00060 |
|---|---|---|

Remarks: to set time interval for sending GPRS packets.

XXXXX should be in five digits and in unit of 10 seconds.

XXXXX=00000, to turn off this function;

XXXXX=00001~65535, time interval for sending GPRS packet and in unit of 10 seconds.

In this example, the tracker will send every 600 seconds (10 minutes).

| Set Heartbeat Interval | W******,015,data | W000000,015,10 |
|---|---|---|

Remarks: to set interval for heartbeat.

Data: in unit of minute

data=0, to turn off this function;

data=1~65535, set interval for heartbeat.

In this example, the tracker will send heartbeat every 10 minutes.

| Set Sensitivity of Tremble Sensor | W******,035,XX | W000000,035,30 |
|---|---|---|

Remarks: Send this command to set sensitivity of tremble sensor

Note:

1.    XX=[1,255], it will be more sensitive if XX is smaller.

2.    Default value is 30.

Example: W000000,035,30

| Heading Change Report | W******,036,degree | W000000,036,90 |
|---|---|---|

Remarks: when the heading direction of the tracker changes over the preset degree, a message with location data will be sent back to the server by GPRS.

degree=0, to turn off this function;

degree=[1,360], to set degree of direction change.

***For more information regarding GPRS tracking please refer to GPRS Communication Protocol.***

| Output Control (Immediate) | W******,020,P,F | W000000,020,1,1 |
|---|---|---|

Remarks:

| P =1, Output1 | =2, Output2 | =3, Output3 | =4, Output4 | =5,Output5 |
|---|---|---|---|---|

| F =0, to close the output (open drain) | =1, to open the output (Low voltage) |
|---|---|

For example, if you have connected Output1 with a relay, you can send W000000,020,1,1 to stop the engine.

| Output Control (Conditional) | W******,120,ABCDE | W000000,120,10000 |
|---|---|---|

| | W******,220,ABCDE | W000000,220,10000 |
|---|---|---|

Remarks: This function is achievable only when the speed is below 10km/h(command 120) or 20km/h(command 220) and meantime GPS is available.

ABCDE represents Out1, Out2, Out3, Out4, and Out5 respectively.

If A or B or C or D or E,

| =0, to close the output (open drain) | =1, to open the output (low voltage) | =2, to remain previous status |
|---|---|---|

| **Sleep Mode** | W******,021,X | W000000,021,2 |
|---|---|---|

Remarks: this setting is for power saving.

| X=0 turn off sleep mode | X=1 Level I | X=2 Level II | X=3 Level III |
|---|---|---|---|

Here is some explanation for the sleep mode.

GPS module will be closed for 64 seconds * X ( X=1, 2, 3), if it gets continuous GPS fixed for 32 times or Non-GPS fixed for 128 times. After that, GPS module will periodically work and close.

| **Power Down** | W******,026,XX | W000000,026,10 |
|---|---|---|

Remarks: power down mode when the tracker is inactive (stationary) for a period of time.

In Power Down mode, GPS stops working and GSM enters sleep and stop sending out message until it is activated by message, incoming calls, movement or input changes.

XX=00, to turn off this function.

XX=01~99, to turn on Power Down after a specified period of being inactive. It is in unit of minute.

In this example, the tracker will enter power down mode after it is inactive for 10 minutes.

| **Listening-in (Voice Monitoring)** | W******,030,T | W000000,030,138000000 |
|---|---|---|

Remarks: Authorize a phone number to make a silent call to the tracker. The tracker will answer the call automatically and allows the caller to listen to what happens around the tracker. There is no sound when the tracker is working.

Note:

T is phone number, Max. 16 digits;

If incoming call is not from authorized phone number, it will be treated as a normal call and would not enter Listening-in status.

| **Set Log Interval** | W******,031,X | W000000,031,60 |
|---|---|---|

Remarks: to set the interval for storing GPS data into tracker's flash memory.

(Note: this interval is not relevant to the interval of SMS/GPRS tracking)

X=0, to turn off this function.

X=[1, 65535] to set interval in second.

In this example of W000000,031,60, the tracker will store location data every 60 seconds.

| **Format Buffer** | W******,503 | W000000,503 |
|---|---|---|

Remarks: This command clears the data stored in the buffer.

Note: Deleted data can't recover any more.

| **Time Zone** | W******,032,T | W000000,032,480   W000000,032,-120 |
|---|---|---|

Remarks: Default time of the tracker is GMT, you can use this command to correct it to your local time. This command is for SMS tracking only.

T=0, to turn off this function;

T= [-32768,32767] to set time difference in minute to GMT.

For those ahead of GMT, just input the time difference in minute directly. For example, GMT+8, W000000,032,480

'-'is required for those behind GMT. For example, W000000,032,-120.

| | | |
|---|---|---|
| **Set SMS Header** | W******,033,P,Char | W000000,033,1,help |

Remarks: this command is to set initial characters for SOS message when SOS/IN1, Button B/IN2, Button C/IN3 is pressed.

| P=1, SOS button/Input1 | P=2, B button/Input2 | P=3, C button/Input3 |
|---|---|---|

Char is the character in SOS message and max 32 characters and defaulted as:

| 1 SOS Alarm! | 2 Cry For Help! | 3 Call The Police! |
|---|---|---|

| | | |
|---|---|---|
| **Get Version No. and Serial No.** | W******,600 | W000000,600 |

Remarks: to get the version and serial number of tracker's firmware

| | | |
|---|---|---|
| **Get IMEI** | W******,601 | W000000,601 |

Remarks: to get IMEI of the tracker

| | | |
|---|---|---|
| **Reboot GSM** | W******,901### | W000000,901### |

Remarks: to reboot the GSM module of the tracker

| | | |
|---|---|---|
| **Reboot GPS** | W******,902### | W000000,902### |

Remarks: to reboot the GPS module of the tracker

| | | |
|---|---|---|
| **Initialization** | W******,990,099### | W000000,990,099### |

Remarks: Send SMS "Default?" to the device, and then send (within 120 seconds) this SMS command to the tracker to make all settings (except for the password) back to factory default.

### is the ending character.

| | | |
|---|---|---|
| **Password Initialization** | W888888,999,666 | W888888,999,666 |

Remarks: In case you forget your password, Send SMS "Default?" to the device, and then send (within 120 seconds) this SMS command to the tracker to make the password back to factory default (000000).

## Annex 2. Troubleshooting

| Problem: Unit will not turn on when pushing the power switch to On side | |
|---|---|
| **Possible Cause:** | **Resolution:** |
| Power switch was not pushed properly | Make sure the power button is pushed to On side |
| Battery needs charging | Recharge battery for 3 hours |

| Problem: Unit will not reply with SMS | |
|---|---|
| **Possible Cause:** | **Resolution:** |
| Green LED is flashing (1 second on and 2 seconds off) | Make sure VT310 is connected to GSM network |
| GSM Network is slow | Some GSM networks slow down during peak time or when they have equipment problems |
| Unit is sleeping or in power down mode | Cancel sleeping mode or power down |
| Wrong password in your SMS or wrong SMS format | Write correct password or SMS format |
| The SIM has run out of credit | Replace or top up the SIM card |

| Problem: Green LED is Flashing (1 second on and 2 seconds off) | |
|---|---|
| **Possible Cause:** | **Resolution:** |
| No GSM signal | Check with a mobile phone to see if there is a signal in the area or try to call the unit to see if you hear a ring tone |
| No SIM card | Insert a working SIM card. Check in phone that the SIM can send SMS message |
| SIM card has expired | Check in phone that the SIM can send SMS message. Replace SIM card if needed |
| SIM has PIN code set | Remove PIN code by inserting SIM in your phone and deleting the code |
| SIM is warped or damaged | Inspect SIM, clean the contacts. If re-inserting does not help try another to see if it will work |
| Roaming not enabled | If you are in a different country your SIM account must have roaming enabled |
| Battery is low | Recharge the unit and the GSM will start working |

| Problem: Blue LED is Flashing (1 second on and 2 seconds off) or the SMS received starts with 'Last…' | |
|---|---|
| **Possible Cause:** | **Resolution:** |
| Unit does not have clear view of the sky | Move the unit to a location where the sky is visible. Tall buildings, trees, and heavy rain can cause problems with the GPS reception. |
| Bad GPS reception | Place the front side of VT310 towards sky |
| Battery is low | Recharge the unit and the GPS will start working. |

| Problem: Unit Fails to Connect to Server via GPRS | |
|---|---|
| **Possible Cause:** | **Resolution:** |
| SIM card in device does not support GPRS function | Enable SIM card GPRS function |
| GPRS function of VT310 is turned off | Turn on GPRS function |
| Incorrect IP address or PORT | Get the right IP address and PORT and reset |
| GSM signal is weak | Move the unit to a location with good GSM reception |

| Problem: Unit will not turn on | |
|---|---|
| **Possible Cause:** | **Resolution:** |
| Wiring was not connected properly | Check and make sure wiring connection is in order |
| Battery needs charging | Recharge battery |

| Problem: Unit will not respond to SMS | |
|---|---|
| **Possible Cause:** | **Resolution:** |
| GSM antenna was not installed properly | Make VT310 connected to GSM network |
| GSM Network is slow | Some GSM networks slow down during peak time or when they have equipment problems |
| Unit is sleeping | Cancel sleeping mode |
| Wrong password in your SMS or wrong SMS format | Write correct password or SMS format |

| The SIM in VT310 has run out of credit | Replace or top up the SIM card |
|---|---|
| No SIM card | Insert a working SIM card. Check in phone that the SIM can send SMS message |
| SIM card has expired | Check in phone that the SIM can send SMS message. Replace SIM card if needed |
| SIM has PIN code set | Remove PIN code by inserting SIM in your phone and deleting the code |
| SIM is warped or damaged | Inspect SIM, clean the contacts. If re-inserting does not help try another to see if it will work |
| Roaming not enabled | If you are in a different country your SIM account must have roaming enabled |
| Error connecting GSM antenna | Make sure the GSM antenna is connected to the GSM interface |
| **Problem: SMS received starts with 'Last...'** | |
| **Possible Cause:** | **Resolution:** |
| Unit does not have clear view of the sky | Move the antenna of the unit to a location where the sky is visible |
| VT310 is in an inner place | Wait for the target to come out |
| Battery is low | Recharge the unit and the GPS will start working |
| Error connecting GPS antenna | Make sure the GPS antenna is connected to the GPS interface |
| **Problem: Unit Fails to Connect to Server via GPRS** | |
| **Possible Cause:** | **Resolution:** |
| SIM card in VT310 does not support GPRS function | Enable SIM card GPRS function |
| GPRS function of VT310 is turned off | Turn on GPRS function of VT310 |
| Incorrect IP address or PORT | Get the right IP address and PORT and reset to VT310 |
| GSM signal is weak | Move the unit to a location with good GSM reception |

## Contacts

**Please do not hesitate to email us at info@meitrack.com if you have any questions.**